

CLAIMS

What is claimed is:

1. A method of fabricating a microelectronic package, comprising:
 2. providing a substrate having a first surface, an opposing second surface, and a plurality of lands disposed on said first surface;
 4. forming a through-hole extending from said substrate first surface to said substrate second surface;
 6. providing a microelectronic die having an active surface, a back surface, and a plurality of pads disposed on said active surface in a corresponding relationship to said plurality of substrate lands;
 9. electrically attaching said plurality of substrate lands to said plurality of corresponding microelectronic die pads with a plurality of conductive bumps;
 11. disposing an underfill material through said through-hole such that said underfill material is dispersed between said microelectronic die active surface and said substrate first surface.

1. 2. The method of claim 1, wherein forming said through-hole comprises:
 - 2 forming said through-hole by at least one of the methods consisting of drilling, laser ablation, and etching.

1 3. The method of claim 1, wherein disposing said underfill material
2 comprises positioning an underfill material dispensing device proximate said through-
3 hole and injecting said underfill material into said through-hole.

1 4. The method of claim 1, wherein positioning said underfill material
2 dispensing device proximate said through-hole comprises positioning a dispensing needle
3 proximate said through-hole.

1 5. The method of claim 1, wherein disposing said underfill material
2 comprises disposing an epoxy material.

1 6. The method of claim 1, further including curing said underfill material.

1 7. A method of fabricating a microelectronic package, comprising:
2 providing a substrate having a first surface, an opposing second surface, and a
3 plurality of lands disposed on said first surface;
4 forming a through-hole extending from said substrate first surface to said
5 substrate second surface;
6 providing a microelectronic die having an active surface, a back surface, and a
7 plurality of pads disposed on said active surface in a corresponding relationship to said
8 plurality of substrate lands;

9 electrically attaching said plurality of substrate lands to said plurality of
10 corresponding microelectronic die pads with a plurality of conductive bumps;
11 positioning said microelectronic die and said substrate such that said
12 microelectronic die is gravitationally below said substrate; and
13 disposing an underfill material through said through-hole such that said underfill
14 material is dispersed between said microelectronic die active surface and said substrate
15 first surface.

1 8. The method of claim 7, wherein forming said through-hole comprises
2 forming said through-hole by at least one of the methods consisting of drilling, laser
3 ablation, and etching.

1 9. The method of claim 7, wherein disposing said underfill material
2 comprises positioning an underfill material dispensing device proximate said through-
3 hole and injecting said underfill material into said through-hole.

1 10. The method of claim 9, wherein positioning said underfill material
2 dispensing device proximate said through-hole comprises positioning a dispensing needle
3 proximate said through-hole.

1 11. The method of claim 7, wherein disposing said underfill material
2 comprises disposing an epoxy material.

1 12. The method of claim 7, further including curing said underfill material.

1 13. A method of fabricating a microelectronic package, comprising:

2 providing a substrate having a first surface, an opposing second surface, a
3 plurality of lands disposed on said first surface, and at least one wirebond land on said
4 first surface;

5 forming a through-hole extending from said substrate first surface to said
6 substrate second surface;

7 providing a microelectronic die having an active surface, a back surface, and a
8 plurality of pads disposed on said active surface in a corresponding relationship to said
9 plurality of substrate lands;

10 electrically attaching said plurality of substrate lands to said plurality of
11 corresponding microelectronic die pads with a plurality of conductive bumps;

12 disposing an underfill material through said through-hole such that said underfill
13 material is dispersed between said microelectronic die active surface and said substrate
14 first surface;

15 providing a second microelectronic die having an active surface, a back surface,
16 and at least one wirebond pad disposed on said active surface;

17 attaching said second microelectronic die back surface to said microelectronic die
18 back surface; and

19 attaching at least one wirebond between said at least one substrate wirebond land
20 and said second microelectronic die wirebond pad.

1 14. The method of claim 13, wherein forming said through-hole comprises
2 forming said through-hole by at least one of the methods consisting of drilling, laser
3 ablation, and etching.

1 15. The method of claim 13, wherein disposing said underfill material
2 comprises positioning an underfill material dispensing device proximate said through-
3 hole and injecting said underfill material into said through-hole.

1 16. The method of claim 15, wherein positioning said underfill material
2 dispensing device proximate said through-hole comprises positioning a dispensing needle
3 proximate said through-hole.

1 17. The method of claim 13, wherein disposing said underfill material
2 comprises disposing an epoxy material.

1 18. The method of claim 13, further including curing said underfill material.

1 19. The method of claim 13, wherein said attaching said second
2 microelectronic die back surface to said microelectronic die back surface comprises
3 disposing a layer of adhesive therebetween.

1 20. The method of claim 13, wherein further including positioning said
2 microelectronic die and said substrate such that said microelectronic die is gravitationally
3 below said substrate prior to disposing said underfill material.